APRIL/MAY 2023

CBT51 — GENETIC ENGINEERING

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is rDNA?
2. Explain the mode of action of Type 1 restriction endonuclease.
3. What is bacteriophage?
4. Demonstrate the structure of Ml 3 phage.
5. Name the enzyme used in PCR.
6. Demonstrate how denaturation is carried out in PCR.
7. List few molecular markers.
8. Explain the term DNA barcoding.
9. What is gene library?
10. Illustrate about recombinant proteins.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Organise the production of cDNA by reverse transcription

Or

(b) Analyse about Nick translation systems.

12. (a) Identify the artificial chromosome BAC and explain.

Or

(b) Distinguish between expression vector and shuttle vector.

13. (a) Select PCR and find out how many copies are obtained by running 3 cycles.

Or

(b) Examine about real time PCR.

14. (a) Organise the steps involved in RFLP.

Or

(b) Simplify about the nuclear marker Coxgene.

15. (a) List the applications of DNA fingerprinting.

Or

(b) Analyse about sanger chain termination method of DNA sequencing.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain about DNA polymerase and DNA ligase and its role in genetic engineering.

17. Appraise about the plasmid vector pBR322 and pUC vector.

18. Explain the principle steps involved and applications of PCR.

19. Compile about mitochondrial markers.

20. Discuss about the production of recombinant proteins by taking any one example.

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